

## CLAIMS

1. A modulation quality detection system for determining the modulation quality of an illumination modulator in an imaging system, said modulation quality detection system comprising:
  - modulator adjustment means for providing a test pattern on the illumination modulator;
  - a detector for receiving a modulated illumination field from said illumination modulator;
  - sampling means for determining at least three sample values ( $A$ ,  $B$  and  $C$ ) for each of three areas of said modulated illumination field respectively; and
  - evaluation means for determining whether the value  $\left(\frac{A+C}{2}\right) - B$  is greater than a threshold value.
2. The modulation quality detection system as claimed in claim 1, wherein said sample values  $A$  and  $C$  are for areas that are within about 20% of each end of the modulated illumination field.
3. The modulation quality detection system as claimed in claim 1, wherein said imaging system provides zero order imaging.
4. The modulation quality detection system as claimed in claim 1, wherein each of said sample values ( $A$ ,  $B$  and  $C$ ) is provided by an average of about 100 sample values.

5. The modulation quality detection system as claimed in claim 1, wherein said illumination modulator includes a grating light valve and said test pattern on said illumination modulator provides two shutters on at each end of the illumination modulator.
6. A modulation quality detection system for determining the modulation quality of an illumination modulator in an imaging system, said modulation quality detection system comprising:
- modulator adjustment means for providing a test pattern on the illumination modulator;
  - a detector for receiving a modulated illumination field from said illumination modulator;
  - sampling means for determining at least three sample values (*A*, *B* and *C*) for each of first, second and third areas of said modulated illumination field respectively wherein said first and third areas are each within about 20% of an end of said modulated illumination field; and
  - evaluation means for determining whether a quality of said modulated illumination field is within a defined standard.
7. The modulation quality detection system as claimed in claim 7, wherein said first and third areas that are within about 15% of each end of the modulated illumination field.

8. The modulation quality detection system as claimed in claim 7, wherein said imaging system provides zero order imaging.
9. The modulation quality detection system as claimed in claim 7, wherein each of said sample values ( $A$ ,  $B$  and  $C$ ) is provided by an average of about 100 sample values.
10. The modulation quality detection system as claimed in claim 7, wherein said illumination modulator includes a grating light valve and said test pattern on said illumination modulator provides two shutters on at each end of the illumination modulator.
11. A method of determining the modulation quality of an illumination modulator in an imaging system, said method comprising the steps of:
- providing a test pattern on the illumination modulator;
  - receiving a modulated illumination field from said illumination modulator;
  - determining at least three sample values ( $A$ ,  $B$  and  $C$ ) for each of three areas of said modulated illumination field respectively; and
  - determining whether the value  $\left( \frac{A+C}{2} \right) - B$  is greater than a threshold value.
12. The method as claimed in claim 11, wherein said sample values  $A$  and  $C$  are for areas that are within about 20% of each end of the modulated illumination field

13. The method as claimed in claim 11, wherein said imaging system provides zero order imaging.
14. The method as claimed in claim 11, wherein each of said sample values (A, B and C) is provided by an average of about 100 sample values.
15. The method as claimed in claim 11, wherein said illumination modulator includes a grating light valve and said test pattern on said illumination modulator provides two shutters on at each end of the illumination modulator.